BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT

Quarterly Noise Report
Third Quarter 2018

The Maryland Department of Transportation Maryland Aviation Administration

Office of Environmental Services

Definitions

Maryland Department of Transportation Maryland Aviation Adminstration (MDOT MAA): Operator of Baltimore Washington International Thurgood Marshall Airport (BWI Marshall).

Decibel (dBA): A unit of measurement of sound pressure adjusted for the human ear's response to particular frequencies.

Day-Night Average Sound Level (DNL or Ldn): A descriptor of 24-hour noise (midnight to midnight) that adds a ten-decibel (dB) nighttime penalty to noise events which occur between the hours of 10 p.m. and 7 a.m to account for the intrusive nature of noise at night.

Airport Noise Zone (ANZ): An area of land surrounding the airport within which noise levels are equal to or greater than DNL 65 dBA.

Code of Maryland Regulations (COMAR): Requires MDOT MAA to control development in areas where noise levels are DNL 65 dBA or more.

Summary

This report provides a review of the aviation noise abatement program for the 3rd Quarter of 2018 (July 1 to September 30). Included in this report is information on jet aircraft operations, observance rates for noise abatement procedures, complaints received about aircraft noise, and community outreach efforts by the Maryland Department of Transportation Maryland Aviation Adminstration (MDOT MAA). The table below displays various measurements in comparison to the 3rd Quarter of 2017.

Measurement	3rd Quarter (2018)	3rd Quarter (2017)
Average Daily Jet Operations	685	677
Average Daily Night-time Operations	116	112
Complaints to Noise Office	43,004	5,685
West Flow Operations	55%	67%

News Items of Interest

⇒ Baltimore Washington International Thurgood Marshall Airport (BWI) is offering valet parking service at the airport's hourly garage. The new FLY AWAY valet service is located on level 5 of the garage, which is connected directly to the Airport terminal. "The new 'Fly Away' valet parking service offers our customers an easy, convenient experience," says Ricky Smith, Executive Director of BWI. The new valet service offers 155 spaces, with room to expand as needed. Valet customers are greeted by a professionally trained, uniformed attendant. The staff provides luggage assistance and offers complimentary bottled water, coffee and a newspaper. This service also includes interior vacuuming and windshield cleaning.

⇒ Fraport Maryland (formerly AIRMALL) has announced the opening of two new food and beverage retailers at Baltimore Washington International Thurgood Marshall Airport. **Stupid Delicious** (A/B Boardwalk/Food Court) sells a variety of cookies including Chips and Toffee, Oatmeal Toffee and Vanilla Crunch. **Fitness Lyfestyle** (Concourse C) offers 100% organic body care products such as hand soap, body wash, healing oils, lotion and face wash.

⇒ The Maryland Department of Transportation's Maryland Aviation Administration, along with its industry partners, are reaching out to 50 Baltimore City youth to take them inside one of the most fascinating workplaces in the world, a major metropolitan airport. For one week during the summer, they will be immersed in the day-to-day excitement of flight operations, airport security, transportation, and business. The goal is to provide young minds with the unique opportunity to experience, up close and personal, the wide range of jobs and potential careers that the world of commercial aviation and transportation has to offer. Participants enjoy unprecedented access to BWI Marshall Airport and other facilities where they will see and do things the average passenger or visitor never gets to experience. With guides and mentors by their side every step of the way, they will literally explore the airport, inside and out. From this exceptional vantage point they will see and learn about the people and variety of jobs necessary to make BWI Marshall Airport operate.

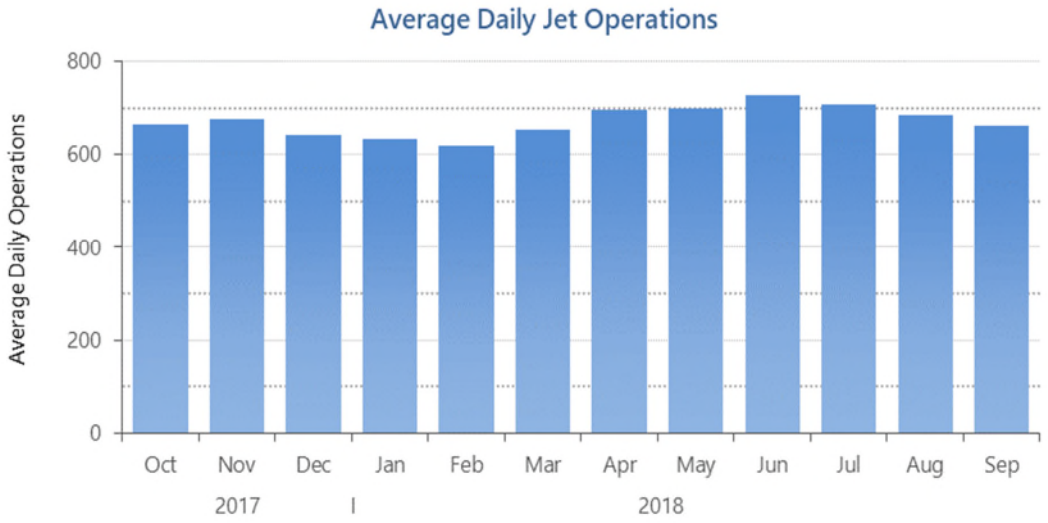
Airport Operations

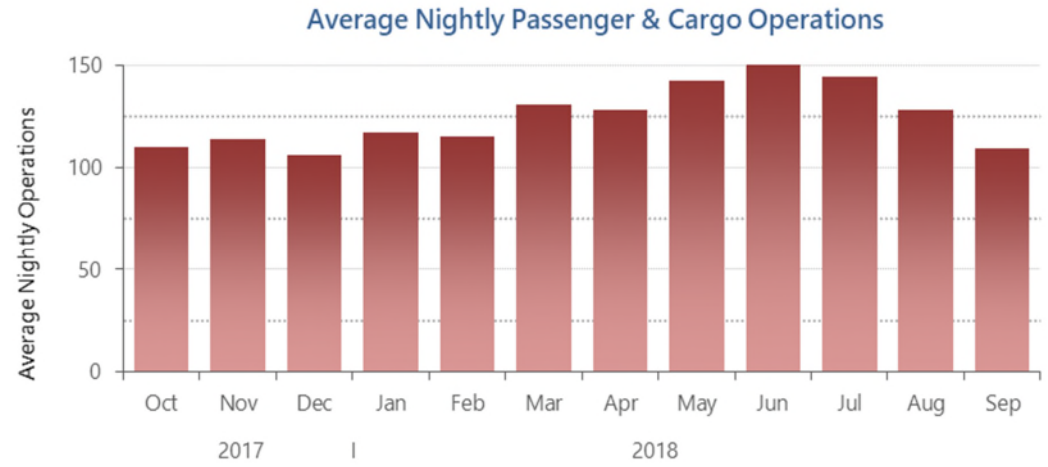
This section presents information on the level of operational activity at BWI Marshall; including air traffic levels by jet aircraft, runway use, and flight corridors.

Jet Operations and Nighttime Activity

The first figure shows the average number of daily jet flights at BWI Marshall, including arrivals and departures by business jets and air carrier aircraft. The figure also presents data for the preceding nine months, for a twelve-month total. The average daily number of jet operations during the 3rd Quarter of 2018 was 685.

The next figure presents nighttime air carrier, business jets and cargo jet operations. At BWI Marshall, a nighttime operation is defined as an arrival flight or departure flight that occurs between the hours of 10 p.m. and 7 a.m. The average number of nighttime jet operations was approximately 116 per night during the 3rd Quarter of 2018.





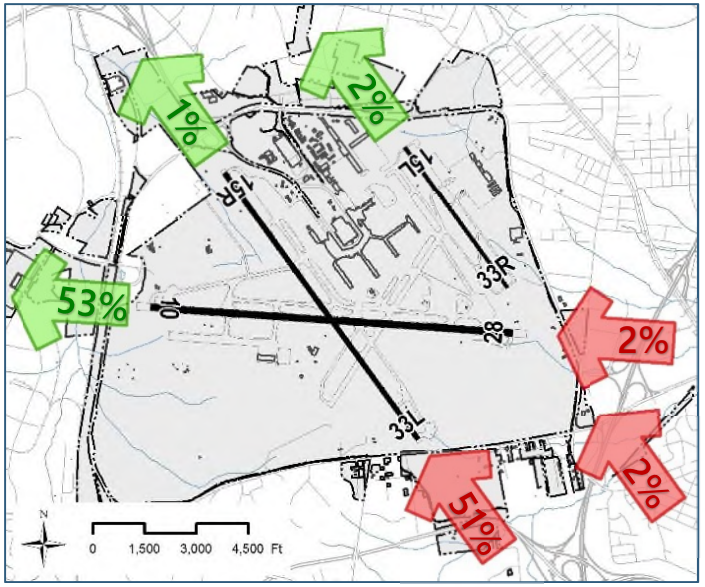
Runway Use

The MDOT MAA maintains a preferential runway use program to minimize the aircraft noise impact on neighboring communities. For noise abatement purposes, west flow (aircraft departures to the west) is preferred. Prevailing wind speed, direction and weather factors determine the direction of air traffic flow. Aircraft usually take off and land into the wind to meet safety and operational requirements. The figures to the right show jet runway use for the 3rd Quarter of 2018.

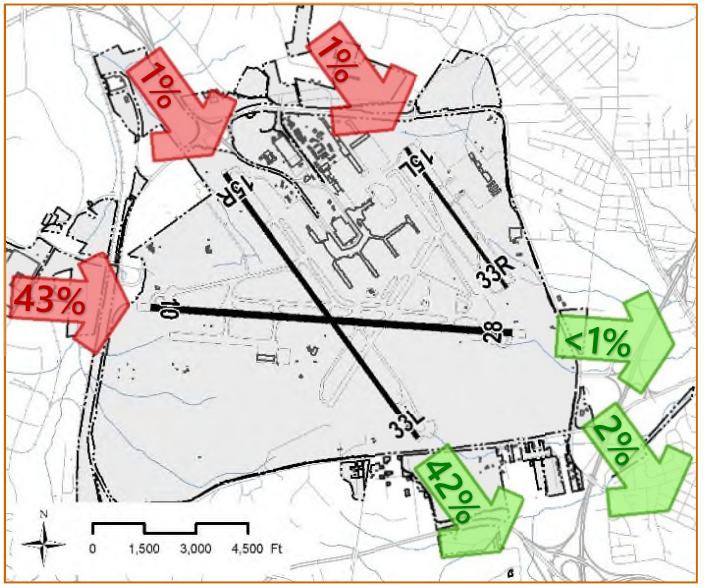
During west flow, all jet aircraft primarily depart (green arrows) from Runway 28 and arrive (red arrows) on Runway 33L, as shown in the top figure to the right. Historical trends result in annual average west flow of about 70%.

During east flow, all jet aircraft primarily depart (green arrows) from Runway 15R and arrive (red arrows) on Runway 10, as shown in the bottom figure to the right. Historical trends result in annual average east flow of about 30%.

West Flow
Runway Use
55% in Third Quarter 2018
(Historical Annual Average of 70%)



East Flow
Runway Use
45% in Third Quarter 2018
(Historical Annual Average of 30%)

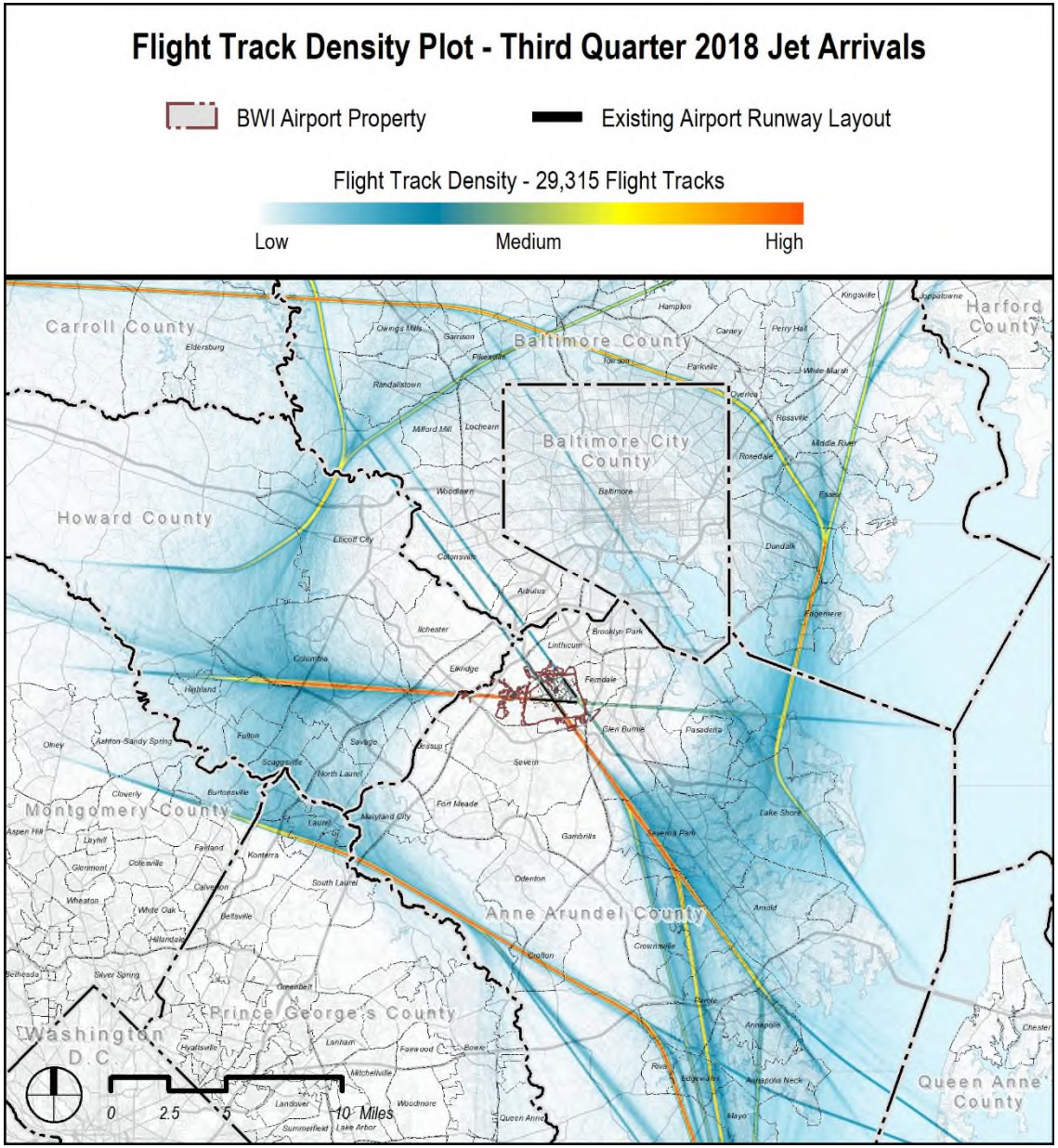


Flight Corridors – Jet Arrivals

The following figures depict the flight corridors at BWI Marshall for jet arrivals and jet departures as derived from BWI Marshall's Noise and Operations Monitoring System (NOMS).

The figure to the right shows jet arrivals during the 3rd Quarter of 2018.

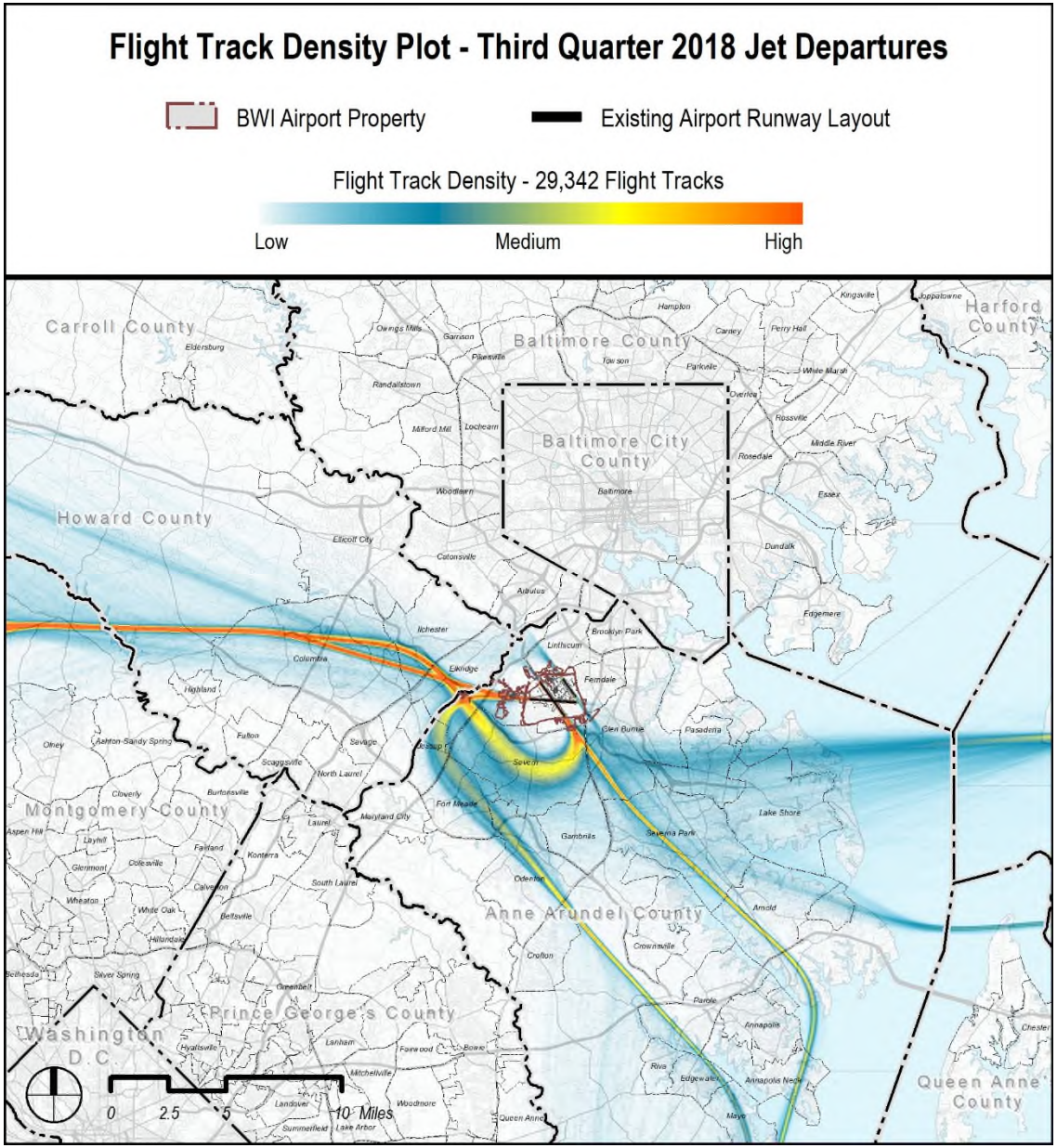
This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Flight Corridors – Jet Departures

The figure to the right shows jet departures during the 3rd Quarter of 2018.

This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Observance of Noise Abatement Procedures

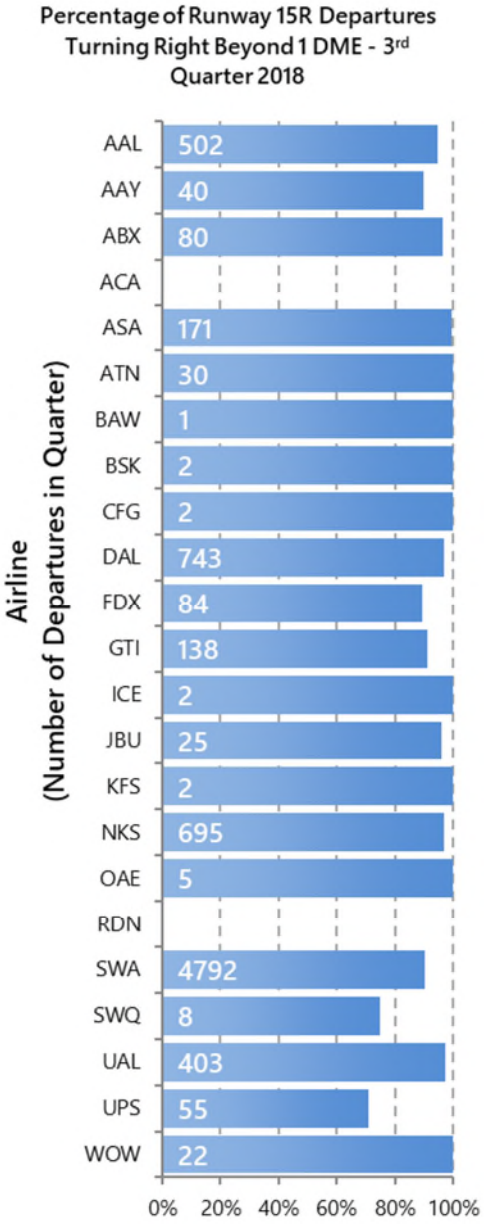
The graphs to the right show how the major carriers and cargo operators perform on the two noise abatement procedures of most interest to the local communities. These procedures are:

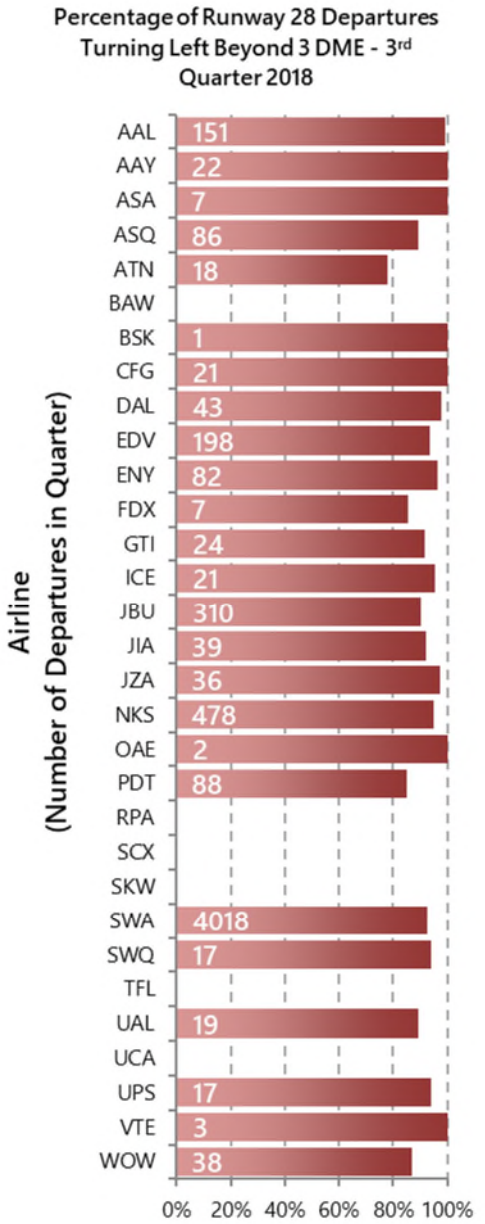
1. Runway 15R departures initiating their right turns at, but not prior to, 1 DME
2. Runway 28 departures initiating their turns at, but not prior to, 3 DME

The graphs show the percentage of flights for each airline which comply with each of the two procedures. Each bar also provides the number of operations by each airline subject to the noise abatement procedure. DME stands for Distance Measuring Equipment, and is the measured slantrange from the aircraft to the navigational aid located near the center of the Airport. One DME equals one nautical mile.

For the 3rd Quarter of 2018, 92% of departures turning right from Runway 15R initated their turns beyond 1 DME.

For the 3rd Quarter of 2018, 92% of departures turning left from Runway 28 initated their turns beyond 3 DME.





Outreach and Community Involvement

The MDOT MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents.

The MDOT MAA Community Outreach Programs encourage the exchange of information between the MDOT MAA and local community groups and residents. These programs supplement the efforts of the BWI Marshall Neighbors' Committee to promote the active participation of local residents in Airport issues.

Specific services or activities provided by the MDOT MAA are listed in the table to the right along with the number of events or recorded reports.

DC Metroplex BWI Community Roundtable

The DC Metroplex BWI Community Roundtable is an MDOT MAA initiative formed at the request of the Federal Aviation Administration (FAA).

More information about the Roundtable, including meeting agendas, past meeting minutes, and presentation materials, is available at www.maacommunityrelations.com.

Public Education & Activities – 3rd Quarter of 2018	
Committee Meetings	1
Community Meetings	0
Community Noise Monitoring Reports	5
Airport Zoning Permits	95
eNews Express notifications	14

Roundtable Meetings – 3rd Quarter of 2018

- July 17, 2018
  - FAA involvement in DC Metroplex BWI Community Roundtable
  - MDOT MAA status of detailed technical analysis of FAA procedure designs
  - Concourse A Project

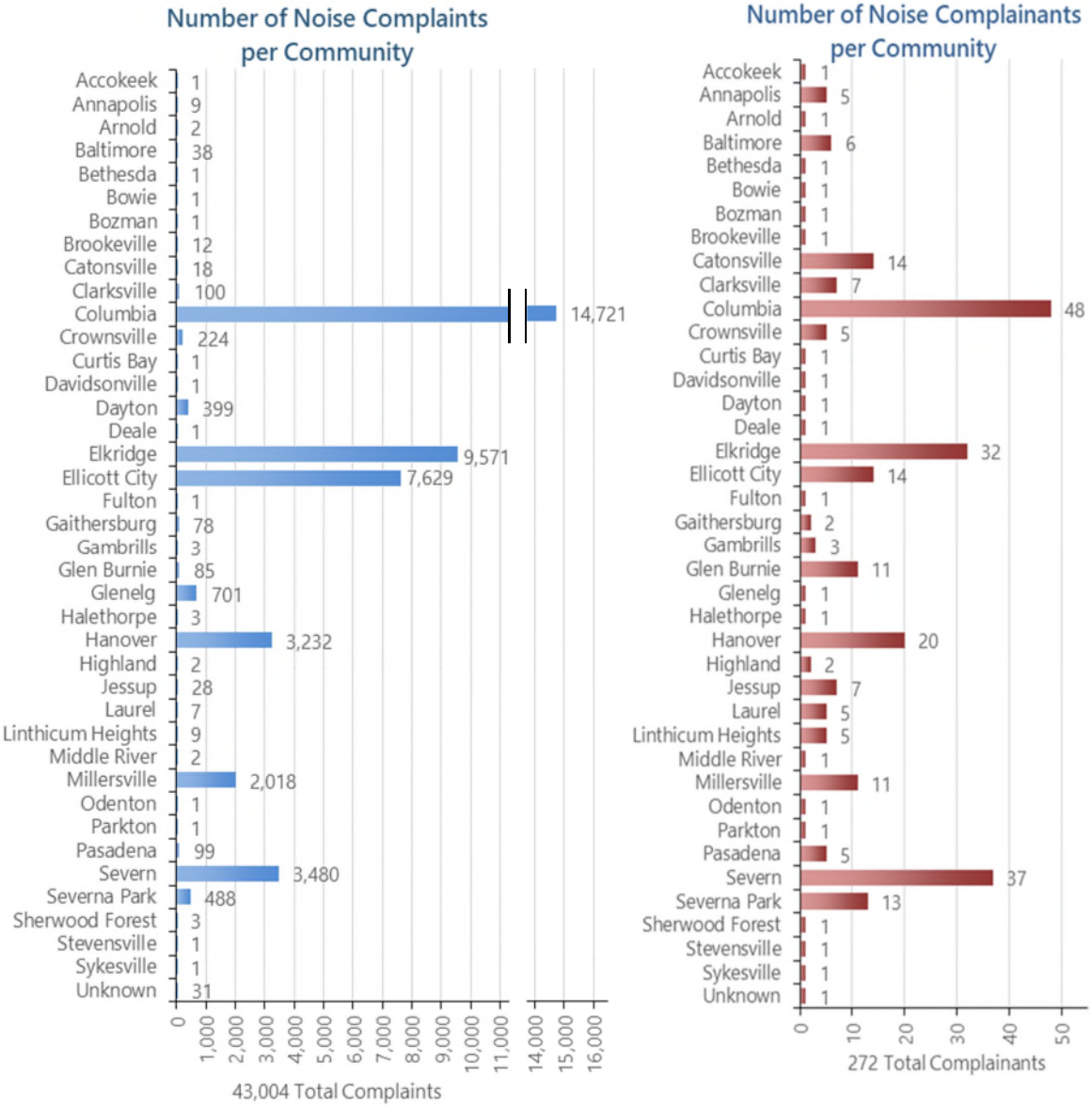
Airport Noise Complaints

The MDOT MAA maintains a 24-hour Airport Noise Hotline at 410-859-7021. Noise complaints can also be entered online at:

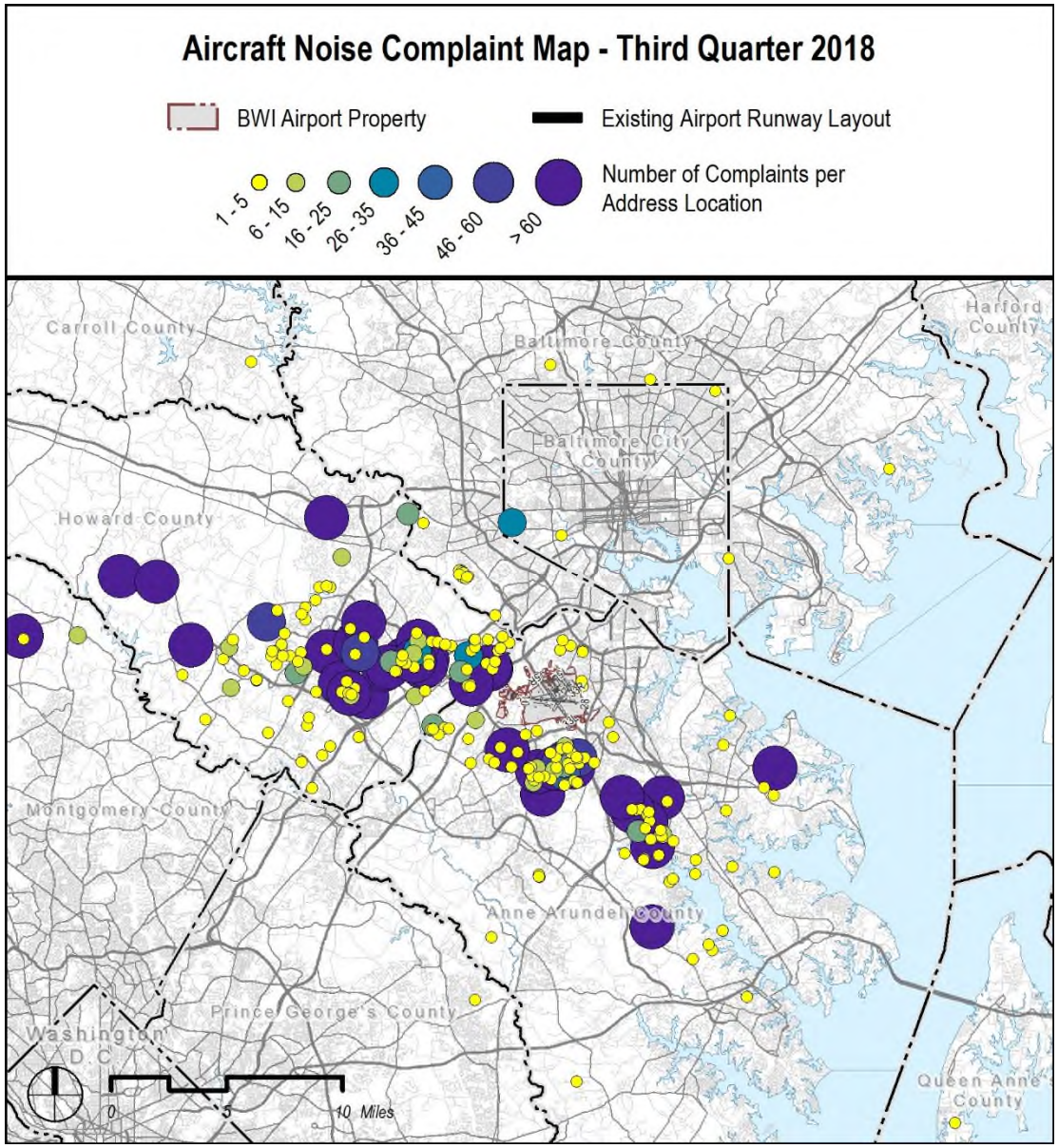
http://www.maacommunityrelations.com/content/anznoiseupdate/noiseform.php

The graphs show the number of complaints and complainants per community for the quarter.

There were 43,004 complaints (272 complainants) during the 3rd Quarter of 2018.



The map to the right shows the locations and number of complaints for the 3rd Quarter of 2018. The size and color of each caller location denotes the number of times a complaint was submitted during the quarter. Small yellow circles depict locations with fewer complaints while large darker circles depict greater numbers of complaints.



BWI Marshall Neighbors Committee

The BWI Marshall Neighbors Committee was established in December 1983 and serves as a liaison between the Airport and the surrounding communities to ensure continuing and timely discussion of mutual airport and community interests.

The Committee serves as a forum for exchanging information, ideas and suggestions. Examples of interests include ground access (highways, light rail, etc.), long-range transportation planning, operational changes (construction, maintenance and air traffic control), noise abatement and other environmental issues, parking and ground transportation, and land use planning.

Community Enhancement Grant Program

The Annotated Code of Maryland, Transportation §5-414 provides for an 11-member "Citizens Committee for the Enhancement of Communities Surrounding Baltimore/Washington International Thurgood Marshall Airport."

This legislation benefits citizens living within the 1998 certified Airport Noise Zone or within two miles of the outermost noise contour by allowing them to apply for grants for transportation-related projects such as sidewalks, speed humps, street lights, etc. The grants awarded under this program are made by the Secretary of the Maryland Department of Transportation.

BWI Neighbors Committee Community Groups

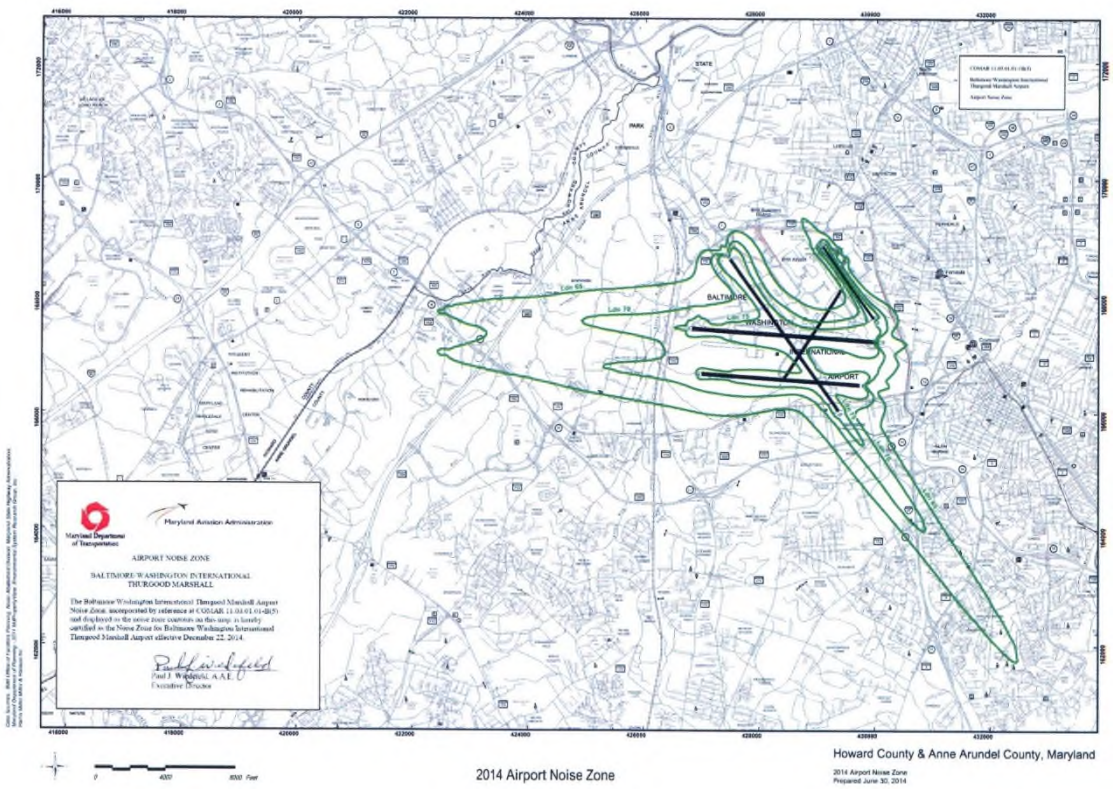
- Columbia Council
- Greater Elkridge Community Association
- Elmhurst Improvement Association
- Glen Burnie Improvement Association
- Glen Burnie Park Civic Association
- Ferndale Area Community Council
- Greater Pasadena Council
- Harmans Civic Association
- Linthicum/Shipley Improvement Association
- Severn Improvement Association
- Timber Ridge Improvement Association

The Community Enhancement Grant Committee met on September 27, 2018, and recommended the approval of grant applications 18-18, 19-1, 19-2, 19-3 and 19-4 in the amount of $170,544.

Airport Noise Zone

The Maryland Environmental Noise Act of 1974 provides for the protection of citizens from the impact of transportation-related noise. The aviation portion of the Act requires the MDOT MAA to create a certified Airport Noise Zone (ANZ) to control incompatible land development around BWI Marshall and a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport. An ANZ and NAP were first established for BWI Marshall in 1976. Both were updated in 1982, 1988, 1993, 1998, and 2007. The latest update to the ANZ became effective on December 22, 2014.

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the outline of the ANZ, thereby offering protection within the largest of the existing or future noise contours. The contours depict the Day-Night Average Sound Level (DNL) around BWI Marshall. Both the State of Maryland and the FAA require the use of the DNL metric by all airports conducting environmental studies. The current 2014 ANZ is depicted to the right.



2014 Airport Noise Zone

Further information on the ANZ can be found here:

http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php

Noise Monitoring Program

MDOT MAA is transitioning to a new Noise and Operations Monitoring System, which includes replacement of BWI Marshall's legacy remote monitoring terminals. Throughout the remainder of 2018 and into 2019, the legacy noise monitors, as indicated by red triangles on the figure to the right, will be brought off-line and replaced by new noise monitors.

The figure to the right presents aircraft, community, and total noise levels at the permanent noise monitors for the 3rd Quarter of 2018 from the NOMS.

The term DNL (symbolized as "Ldn" in mathematical equations) means Day-Night Average Sound Level, and is used to report aircraft, community and total noise levels. DNL is defined as the cumulative sound energy averaged over a twenty-four hour period, with ten-decibels (dB) added to noise events which occur between the hours of 10 p.m. and 7 a.m. This penalty accounts for the greater impact of noise events which occur at night. DNL is measured from midnight to midnight.

The figure to the right shows the quarterly Aircraft (A), Community (C), and Total (T) DNL values at each site, where data is avialable. At some sites, community or environmental noise levels (street traffic and other neighborhood noises) exceed aircraft noise levels.